# PATENT COOPERATION TREATY

# **PCT**

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0005211-0784	FOR FURTHER ACT	TION	See Form PCT/IPEA/416	
International application No. PCT/CA2004/001956	International filing date 12 November 2004 (1	(day/month/year) 12-11-2004)	Priority date (day/month/year) 14 November 2003 (14-11-2003)	
International Patent Classification (IPC) or national classification and IPC IPC: G21C 17/017 (2006.01), F16L 55/00 (2006.01), G01N 29/04 (2006.01)				
Applicant HYDRO-QUEBEC ET AL				
This report is the international prelimin under Article 35 and transmitted to the	ary examination report, e	established by this Interna	tional Preliminary Examining Authority	
2. This REPORT consists of a total of	5 sheets, including	g this cover sheet.		
This report is also accompanied by AN	_	<del>-</del>		
	• -	eau) a total of 0	sheets, as follows:	
1				
[X] sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).				
[ ] sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.				
b. [ ] (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).				
4. This report contains indications relating to the following items:				
II				
	[X] Box No. II Priority [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability			
[ ] Box No. IV Lack of unity of invention				
[X] Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;				
citations and explanations supporting such statement				
[ ] Box No. VI Certain documents cited				
[ ] Box No. VII Certain defects in the international application				
[ ] Box No. VIII Certain observations on the international application				
Date of submission of the demand 19 July 2005 (19-07-2005)		Date of completion of this report 14 February 2006 (14-02-2006)		
Name and mailing address of the IPEA/C	A	Authorized officer		
Canadian Intellectual Property Office Place du Portage I, CI14 - 1st Floor, Box 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476	PCT	Louis-Pierre Riel (819) 997-0232		

International application No. PCT/CA2004/001956

Во	x No.	I B	asis of the	report			
1.	Wit	h rega	ard to the la	nguage, this rep	oort is based on:		
	[X] the international application in the language in which it was filed						
	[]	a tra	nslation of	the internationa	l application int	t <b>o</b>	, which is the language of a
		trans	slation furni	ished for the pu	rposes of:		
		[ ]	internatio	nal search (Rul	es 12.3(a) and 2	3.1(b))	
		[ ]	publication	on of the interna	itional application	on (Rule 12.4(a))	
		[ ]	internatio	nal preliminary	examination (R	tules 55.2(a) and/or 55.3(a))	
2.	the i	receiv exed t	ing Office in o this repor	n response to a t):	nternational appl n invitation und originally filed/	er Article 14 are referred to in this	lacement sheets which have been furnished to report as "originally filed" and are not
	[X]	the o	description:				
		[X]	pages	1, 3, 5, 8 and	9		as originally filed/furnished
		[X]	pages*	2, 2a, 4, 6 and	<u> 17</u>	received by this Authority on	7 December 2005
		[ ]	pages*			received by this Authority on	
	[X]	the c	claims:				
		[ ]	claims				as originally filed/furnished
		[ ]	claims*			as amended (together with	any statement) under Article 19
		[X]	claims*	1 to 16		received by this Authority on	7 December 2005
		[ ]				received by this Authority on	
	[X]		irawings:				
		[X]	pages	1/8 to 8/8			as originally filed/furnished
		[]	pages* pages*			received by this Authority on	
	г з			a and/or one ro	Jatad tahla(a)	received by this Authority on see Supplemental Box Relating to S	
	( )	a sec	querice ristin	ig and/or any re	iateu taute(s) - s	see Supplemental Box Relating to S	equence Listing.
3.	[X]	The	ama am dan am t	a hassa asasilis d			
э.	[7]				in the cancellati		•
		[X]		ption, pages	2, 4, 6, 7 as ori		
		[ ]		ngs, sheets/figs	1 to 18 as origi	nany med	
		[ ]		nce listing <i>(spec</i>	rifu).		
		[ ]			uence listing (s)	necify):	
		• •		-,	[		
4.	[ ]	This since [ ] [ ] [ ] [ ]	they have to the descrip the claims the drawin the sequen	been considered ption, pages , Nos. ngs, sheets/figs nce listing (spec	d to go beyond t	he disclosure as filed, as indicated i	port and listed below had not been made, n the Supplemental Box (Rule 70.2(c)).
*	lf item	1 4 ap	plies, some	or all of those s	sheets may be m	arked "superseded."	

International application No. PCT/CA2004/001956

Box No. II	Priority			
	report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time the requested:			
[ ]	copy of the earlier application whose priority has been claimed (Rule 66.7(a)).			
[ ]	translation of the earlier application whose priority has been claimed (Rule 66.7(b)).			
foun	report has been established as if no priority had been claimed due to the fact that the priority claim has been d invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is idered to be the relevant date.			
3. Additional o	bservations, if necessary:			
	as been established as if no priority had been claimed for claimed for claims 3 to 6, 11, 13 and 16, as some ed in these claims cannot be found in the priority document, namely:			
document nor	claim refers to elongated grooves (36 in the description) and pins (34) which are not described in the priority can it be interpreted clearly from the drawings. A drawing for the cracking bracelet seems to suggest a hing is visible when the sensor modules are in place.			
Claim 2: This priority docum	claim depends on claim 1, and again refers to grooves an pins which are not described or visible in the nent.			
Claim 3: This engage the gro	claim depends on claim 2. In addition the connecting rod which has extensions that are essentially the pins to oves are not described or visible in the priority document.			
Claim 4: This	claim depends on claim 1.			
Claim 9: This claim refers to a return spring element extending between each wedge of the two wedges and the ultrasonic transducer which is not described in the priority document nor can it be interpreted clearly from the drawings. Reference is made to figure 6 of the priority document, the first drawing of the cracking bracelet and the drawing "angular scan for axial cracks" of the orbital scanner which are the most closely related drawing showing the transducer.				
Claim 11: This claim refers to the first driving means having connected by connecting rods. Such as for claim 3, these connecting rods are not visible and no figure can suggest this type of construction.				
Claim 14: In the only drawing of the priority document showing the receiving surface (orbital scanner, first page of drawings - the surface are not visible on figure 8), there is an extension of the surface in the radial direction, but no provision of an extension on the front side of the slidable member.				

International application No. PCT/CA2004/001956

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial
	applicability: citations and explanations supporting such statement

	1. Statement			
	Novelty (N)	Claims	1 to 16	YES
		Claims	None	NO
	Inventive step (IS)	Claims	1 to 16	YES
		Claims	None	NO
ŀ				
	Industrial applicability (IA)	Claims	<u>1 to 16</u>	YES
ı		Claims	None	NO
	1			

#### 2. Citations and explanations (Rule 70.7)

Citation from the International Search Report:

D2: WO 01/96808 A2 20 December 2001 (20-12-2001) Lavoie

New citations:

D5: US-4,389,894 A 28 June 1983 (28-06-1983) Kajiyama

Fig. 1; column 2, lines 20 to 54

#### Novelty (N)

### Claims 1 to 16 comply with Article 33(2) of the PCT.

Claim 1: The closest prior art D2 describes a bracelet for moving sensors (of the ultrasonic type, pages 5 and 6) along a pipe, comprising a frame, supports and sensors. The sensors are distributed on the bracelet, so as to partially surround the pipe to be measured. The bracelet is provided with wheels that effect longitudinal motion of the sensor along the pipe (page 10). However, there is no provision of a mechanism to move the sensors peripherally in D2.

Claims 2 to 16: As all these claims depend on claim 1, the same reasoning applies.

#### Inventive Step (IS)

#### Claims 1 to 16 comply with Article 33(3) of the PCT.

The closest combination of prior art is D2 in view of D5. Regarding claim 1, D2 describes a bracelet for moving ultrasonic sensors along a pipe. The frame of this bracelet is essentially the same frame as contemplated in the embodiment illustrated by figures 1 and 2 of the present application. In D2, the displacement of the frame along the axial direction is accomplished by using wheels disposed around the frame in about the same positions as in the present device. D2 also provides for driving means to displace the frame (page 11, line 33). As current claim 1 only defines the second driving means as "for controllably driving the wheels in rotation and thereby displacing the frame", such general statement reads in the solution described in D2. Biassing means are contemplated (page 3) for urging the sensors against the pipe.

#### (continued in Supplemental Box)

International application No. PCT/CA2004/001956

	Supp	lemental	Box
--	------	----------	-----

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box No. V - Inventive Step (IS)

Claims 1 to 16 comply with Article 33(3) of the PCT (continued).

D2 does not provide for a mechanism to move the sensors peripherally nor for the solution of the pin and cooperating groove. The solution of a mechanism to move the sensor is shown in numerous patent documents in U.S. classes 73/622 and 73/637, D5 being an example of such a system which could be adaptable with the current device resulting in an embodiment similar to what is illustrated by figures 5 to 9 of the current application. D5 describes a cylindrical guide rail for an ultrasonic flaw detector using a rack (22) and pinion (24) system. The gear rack is mounted on cylindrical guide rail. The guide rail is concentrically mounted over the pipe to be inspected. The search head of the detector (28) can be displaced circumferentially with a drive using the rack and pinion. The search head is secured at one end by a manipulator arm (30) and bias on place by a compensating guide arm (32) with a roller (34).

However, the solution of the pin and cooperating groove is not described in D5, as the last discloses a more sophisticated system without these elements.

Claims 2 to 16: As all these claims depend on claim 1, the same reasoning applies.

## Industrial Application (IA)

Claims 1 to 16 are industrially applicable and there fore comply with Article 33(4) of the PCT.